

III. REMARKS

Claims 1-19 are pending. Claims 18 and 19 have been withdrawn because they pertain to a non-elected invention. However, Applicants contend that because non-elected claims 18 and 19 are dependent upon independent claim 1, they should be rejoined with the allowed claims when claim 1 is allowed.

The specification has been amended to reflect changes made by Preliminary Amendment (A), filed March 2, 2006, and to improve grammar and clarity. The attached substitute specification contains no new matter.

Claims 1, 2, 5, 6, 9, 10, 15 and 17 have been amended by the present paper. Specifically, claims 1, 2, 5, 6 and 9 have been amended to replace “a derivative thereof” with --an anhydride thereof-- as supported on page 11, lines 18-21, of Applicants’ specification as originally filed.

Independent claims 1 and 10 have been amended to recite “filtering the mixture obtained in step (b) to separate an aqueous phase and a solid phase” as supported on page 23, lines 10-17, of Applicants’ specification as originally filed. Claim 15, which depends upon claim 1, has been amended in accordance with the amendment of claim 1. Therefore, the present amendment has no further limiting effect on the scope of claim 15. Claim 17, which depends upon claim 15, has been amended to improve grammar and not for a reason related to patentability. Therefore, the present amendment has no further limiting effect on the scope of claim 17.

The present amendment adds no new matter to the above-captioned application.

A. The Invention

The present invention pertains broadly to a method of separating an endo isomer and an exo isomer of a dicarboxylic acid, such as may be used as raw materials for making agricultural chemicals or in industry. The endo isomer and exo isomer of dicarboxylic acid are known to have different melting points and reactivity.

Thus, in accordance with an embodiment of the present invention, a method of separating an endo isomer and an exo isomer of a dicarboxylic acid is provided that includes steps recited by independent claim 1. In accordance with another embodiment of the present invention, a method of separating an endo isomer and an exo isomer of a dicarboxylic acid is provided that includes steps recited by independent claim 10. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the various embodiments, in accordance with the present invention, is that a method for extracting a high-purity stereoisomer from a mixture of endo isomer and exo isomer of dicarboxylic acid is provided.

B. The Rejections

Claims 1-17 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite.

Claims 1-17 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Yasunori et al. (JP 11-305444, hereafter, the "Yasunori Document").

Applicants respectfully traverse the Examiner's rejections and request reconsideration of the above-captioned application for the following reasons.

C. Applicants' Arguments

i. The Indefiniteness Rejections

The Federal Circuit has ruled that for a claim to comply with 35 U.S.C. § 112, second paragraph, it must (1) set forth what the Applicant regards as the invention and (2) it must do so with sufficient particularity and distinctness so as to be sufficiently “definite.” Solomon v. Kimberly-Clark Corp., 55 U.S.P.Q.2d 1279, 1282 (Fed. Cir. 2000). During patent prosecution, definiteness of a claim may be analyzed by consideration of evidence beyond the patent specification, including the inventor’s statements to the Patent and Trademark Office. Id. In view of the present amendment, claims 1-17 are now in compliance with 35 U.S.C. § 112 for the following reasons.

The Examiner contends that the phrase “general formula” is ‘vague and indefinite because the specification does not elaborate on what is meant by...“general formula”’ (Office Action, dated November 18, 2008, at 3, lines 1-3). By the present amendment, the specification has been amended to clarify which formulas corresponds to “general formula (1)” and to “general formula (2).”

The Examiner contends that the alternative language in claims 2 and 6 is indefinite because it is open ended and pertains to an improper Markush group. Applicants disagree. The use of alternate expressions does not render the claims indefinite when the alternatives accurately determine the boundaries of the claimed invention, In re Gaubert, 187 U.S.P.Q. 664, 668 (C.C.P.A. 1975), and the Federal Circuit has construed certain alternative language expressions such as “either...or...” expressions in valid claims. Kustom Signals Inc. v. Applied Concepts Inc., 60 U.S.P.Q.2d 1135, 1138-39 (Fed. Cir. 2001). In this case, the alternative language, namely, “said dicarboxylic acid consists essentially of a dicarboxylic

acid represented by the general formula (1) or an anhydride thereof” recites only two clear alternatives and is, therefore, definite.

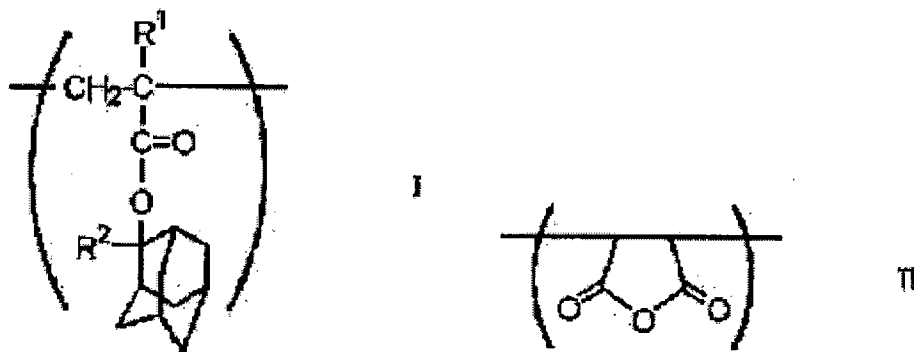
For all of the above reasons, claims 1-17 are in compliance with 35 U.S.C. § 112.

ii. The Section 102 Rejection

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In this case, the Examiner has failed to establish a prima facie case of anticipation because the Yasunori Document does not teach, or suggest, “filtering the mixture obtained in step (b) to separate an aqueous phase and a solid phase” as recited by independent claims 1 and 10.

iii. The Yasunori Document

The Yasunori Document discloses a “chemical amplification type positive resist composition,” wherein the resist composition contains a resin essentially containing (meth) acrylic ester polymer units having 2-alkyl-2-adamantyl as an acid-cleavable group and represented by formula I and polymer units derived from maleic anhydride and represented by formula II and an acid generating agent (See English Abstract from Patent Abstracts of Japan, of record). Yasunori’s “formula I” and “formula II” are reproduced below.



In the formula I, R^1 is H or methyl, and R^2 is 1-8C alkyl (See English Abstract from Patent Abstracts of Japan, of record). According to the Yasunori Document, the resin is obtained by copolymerizing a monomer mixture containing 20-70 mol.% monomer for deriving the polymerization units represented by the formula I, and 20-70 mol.% monomer for deriving the polymerization units represented by the formula II (See English Abstract from Patent Abstracts of Japan, of record). The Yasunori Document also discloses that resin may further contain other polymerization units such as units derived from norbornene (See English Abstract from Patent Abstracts of Japan, of record).

The Yasunori Document discloses, in synthetic example 4, a method involving the steps of: (a) preparing and stirring 5-norbornene-2,3-dicarboxylic anhydride, ethanol and sodium hydroxide solution together, and then (b) conducting extraction to toluene, then (c) conducting a back extraction to an aqueous solution, and then (d) adding HCL to the aqueous solution to precipitate crystals, and then (e) filtering the crystals, and then (f) washing and drying the filtered crystals to obtain 5-norbornene-2,3-dicarboxylic acid (Yasunori Document, ¶ [0050]). Furthermore, the Yasunori Document discloses, in synthetic example 5, a method involving the steps of: (a) mixing 5-norbornene-2,3-dicarboxylic acid, methanol, and sodium hydroxide together, then (b) adding $(CH_3)_2SO_4$, followed by (c) conducting an

extraction to toluene, and then (d) concentrating the toluene to obtain dimethyl 5-norborene-2,3-dicarboxylic acid (Yasunori Document, ¶ [0051]).

However, as would be instantly appreciated by a person of ordinary skill in the art, the Yasunori Document does not teach, or even suggest, “filtering the mixture obtained in step (b) to separate an aqueous phase and a solid phase” as recited by independent claims 1 and 10. Therefore, the Examiner has failed to establish a prima facie case of anticipation against independent claims 1 and 10.

IV. CONCLUSION


In view of the present amendment, claims 1-17 are in compliance with 35 U.S.C. § 112. Furthermore, the Examiner has failed to establish a prima facie case of anticipation, or of obviousness, against claims 1-17 because the Yasunori Document does not teach, or suggest, “filtering the mixture obtained in step (b) to separate an aqueous phase and a solid phase” as recited by independent claims 1 and 10.

For all of the above reasons, claims 1-17 are in condition for allowance, and a prompt notice of allowance is earnestly solicited. Furthermore, upon allowance of independent claim 1, Applicants contend that withdrawn claims 18 and 19 should be rejoined with the allowed claims because claims 18 and 19 are dependent upon claim 1.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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